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**Expressiveness and Meaning in the
Electroacoustic Music of Iannis Xenakis.
The Case of *La légende d'Eer*.**

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Abstract

This presentation proposes to address the issues of expressiveness and meaning in respect to Iannis Xenakis' approach to electroacoustic music. One of the characteristics of his music is that it cannot be approached through a linear and discursive comprehension. Like many modernist composers, Xenakis has sought to escape the language model in favor of a conception of music as an "energetic" and "spatial" phenomenon. However, such an approach does not go without a redefinition of the manner by which the issues of signification in music are understood. As we will show, if it is still possible to speak of "signification" or "meaning" in this context, it is in terms of spatial immersion in the manner similar to the perception of the countless sonorous events with which we are flooded in our daily environments. One aspect to consider is that electroacoustic material, for the most part, evades the semiotic codifications that, in tonal music, once oriented the meaning that a musical work could convey. Music is no longer set inside a quasi-lexical logic based upon culturally codified figure-types. In this respect, such music benefits from a large, expressive freedom that plays on parameters that directly affect listeners on a sensitive and physical level. Xenakis' music is unfolding a world in which the listeners' perceptions and interpretations are actively solicited. It is the aim of this paper to address this issue. For the purpose of this discussion, we will take *La légende d'Eer* as an example.

Traditionally, the idea that music conveys significations often goes together with a language-like conception. However, in the context of modernity, many composers, like Iannis Xenakis, have sought to escape the language metaphor. Indeed, Xenakis has favored a conception of music as an “energetic” and “spatial” phenomenon. Such a conception redefines the manner by which the issues of signification and expression in music can be approached. We propose to investigate various aspects related to these issues. This paper will be divided into three parts. The first deals with the said characteristics implied in Xenakis’ conception of music: energy and space. The second will deal more specifically with the issues of expression and signification in his music. The third part will investigate the case of *La légende d’Eer* as an example of the composer’s specific approach.

1. Energy and Space

Electroacoustic music has dismissed the universe of pitches so propitious to feeding the language metaphor and instead focuses on the world of sound, putting the movement forward, the becoming, and therefore the issue of energy as one of its primary focuses. In many cases, music is regarded as an energetic phenomenon; music touches listeners, not because they “understand” it, but because it enacts energetic transformations through its movements, which resonate with them. This is one of the fundamental characteristics of Xenakis’ music. The composer has always regarded music as an energetic phenomenon, allowing him to transfer certain models and conceptions from the sciences of nature and mathematics into music. As he explains:

Well, in every domain of human activity, form exists as a sort of froth. I have noticed that some figures, some forms, which belong to either the domain of abstract speculation (such as mathematics, logic), or to more concrete speculations (such as physics, treating either subatomic or atomic phenomena), or to those of the geometrical expressions of genetics (such as the chemical molecular reactions). Yet these figures, these forms which belong to so many dissimilar domains also have fascinating similarities and diversifications and can enlighten other domains such as artistic activities (Xenakis, 1985, p. 63).

Xenakis frequently uses metaphors that identify music with natural phenomena, such as fluids, gases, clouds, molecules: “To me, sound is a sort of fluid spanning through time – this is what gave me the idea of transfer from a domain to another”. In the 1950s, such metaphors introduced density as a new constitutive parameter in music. These transfers from physics to sound travel in the same direction – be it thought of as a fluid or as a gas, the sound is comprehended as a movement, as a fluctuating energy. Music is an ensemble of energetic transformations, as Xenakis notes in his drafts for *Concret PH* (Archives Xenakis, Bibliothèque, Carnet 23). It was back when he imagined and put the paradigm into practice that would later be called “granular”, a paradigm through which a given sound is constituted with a large quantity of brief impulsions (spanning below the threshold of perception), i.e., sonorous grains, or “quantas”. Xenakis regards music as “sonorous forms in movements” into space.

Like a significant portion of modernist composers, Xenakis distanced himself from the linear and discursive model of language. From the initial conception of a work, listening and space assume a paramount place. Composers are forced to take these specificities into account and put themselves in the place of future listeners in the middle of a space that they cannot completely control and with which they are unfamiliar. Music is destined to be broadcast

within architectural structures without a stage and without traditional acoustic landmarks. Different speakers are scattered throughout the venue. Sounds emerge from diverse spots, generating the feeling that music surrounds the listeners. Out of a traditional quasi-discursive, face-to-face scenic relationship, we are taken to a more complex relationship where the listeners are immersed in the music, as if a strange universe was unfolding around them. Musical works assume the shape of gigantic sonorous forms that envelop the listener. In other words, the composer seems to immerse the listening in an extremely complex dynamic space that is dense and continuously changing. In such dynamic structures designed for listening, the ear is incapable of perceiving everything, or of even distinguishing a general guiding line, which raises many questions in respect to expressiveness and meaning.

2. Expressiveness in Xenakis' Music

To understand Xenakis' expressive approach, we need to step back from traditional conceptions of expression. Traditionally, the idea that music is some kind of language often goes with the representation that music is a form of communication, i.e., a vehicle meant to transmit intentions or messages. This is not the case here, although there are still certain underlying intentions. Music is no longer considered a vehicle through which to convey messages. However, issues of meaning can be addressed even though they are not the composer's primary concern.

Aside from these "referentialist" conceptions of expression, we also need to distance ourselves from the "immanentist" approaches¹ to expression which focus on emotion in music, including the classic example of Leonard B. Meyer's theory (cf. Meyer, 1956). Although they are useful to understand certain expressive issues in the tonal repertoire, such approaches are of little help in the context of modernist music, including Xenakis' music. Influenced by Gestalt theory, Meyer's theory is based on the idea that emotional responses to music are aroused when a musical passage thwarts certain anticipations or expectations made by the listener as to how it will unfold. Such an approach does not apply to Xenakis' music. It is not governed by the play of expectations, as described by Meyer. Xenakis does not base his music on a harmonic system, melodic shapes, or rhythms generating regular, symmetric, or simple patterns that could condition expectations from the listener's ear, as can be done in tonal music.

One could also imagine, however, referring to other "immanentist" approaches, such as the "theory of the contour" (Davies, 2001, p. 34) advocated by authors such as Stephen Davies or Peter Kivy (cf. Davies, 1994; Kivy, 1980)². In brief, this theory suggests that certain musical passages present formal and dynamic contours which remind the apparent expressive compartments of human emotional states by virtue of resemblance. Such an approach might possibly be adapted to explain how the listener may perceive certain emotional traits in

¹ "Immanentist theories" refer to various accounts of expression that describe primarily musical expressive qualities directly found within the musical surface itself, in contrast to "referentialist" conceptions that focus on extra-musical associations (significations). The former are also called "absolutist expressionist" by Leonard Meyer. Semiotic or symbolic approaches to expression are called "referentialist expressionists" (Meyer, 1956, p. 3).

² Their theories are not particularly concerned with modernist music. Peter Kivy even doubts that issues of expressiveness are relevant in the context of modernism in general, although he actually restricts his considerations to serialism and minimalism (cf. Kivy, 2001).

Xenakis' music. This would not necessarily be wrong per se, but it is not the primary concern of the composer because he has distanced himself from the emotional conceptions of music. The expressive issues in Xenakis' music are not dismissed, but they are redefined along new perspectives. It is therefore important to clarify Xenakis' specific expressive approach in regard to his compositional aesthetic.

2.1 Expressive Approach

Xenakis aims to arouse a mode of listening that can be qualified as "incarnate", i.e., a listening in which the listener's body constitutes the immediate inevitable reality. Xenakis is concerned with how the music can touch and affect the listener viscerally on a sensitive level³. In other words, the composer seeks to create strong, tectonic sensations that the listeners can feel directly before they reach any semantic judgments. For the composer:

The power of music is such that it transports you from one state to another. Like alcohol. Like love. If I wanted to learn how to compose music, maybe it was to acquire this power. The power of Dionysus (Xenakis, 1987, p. 18).

The use of natural models in music plays a significant role in this purpose. The reference to nature does not mean that music seeks to suggest the images of natural landscapes, such as the (so-called) "impressionist" music did, for example. Rather it seeks to immerse the listeners to make them feel the underlying dynamics and movements of phenomena found in nature. Composer François-Bernard Mâche said the following about such an approach:

To imitate the sonorous reality is to uncover some secret of life and reveal processes that are its own; birth, growth, extinction, association, dissociation. In others words, it consists of doing like nature, not of re-doing what it already does (Mâche, 1998, p. 79).

This is precisely what Xenakis tries to achieve. He aims to reveal and make felt those underlying processes by transposing these processes into music through abstraction. His approach consists of finding the way to capture, through music, the sense of fugitive elements forming reality. In other words, he seeks to reveal the underlying structural patterns or processes that govern the universe. Beyond mathematic abstraction that offers a key to understanding his music on a structural and compositional level, there is also a more "dionysiac" facet to Xenakis that seeks to go beyond the formal framework, in order to interrogate the enigma of nature, as if the universe, despite the enlightening of sciences, still keeps some secrets that evade human understanding.

The listener is immersed in a musical space, where gigantic blocks and masses of sounds move all around him. The composer plays on dynamic and kinetic effects that give the listener the sensation of being plunged into a strange universe, where they will be immersed and swayed from side to side, like a boat in the unleashed sea. We have the sensation of being carried away by a storm, a whirlwind, an unleashed sea. In other words, it conjures sensations

³ On first sight, such an approach could appear as some kind of updated variant of a conception of expression described (and criticized) by Kivy and Davies as the "arousal theory" (cf. Kivy, 1980, pp. 18-26; Davies, 1994, pp. 184-199) that is to say, a theory identifying the expressiveness of music with its propensity to *arouse* emotional responses from the listener. The present approach cannot really be identified with this theory, however, because the expressive approach of the composer is not just concerned with the arousal of sensations. As will be explained further on, it is actually an effect resulting from the compositional and expressive characteristics of the music *itself* deriving from the previously mentioned metaphoric transfers (the spatial and energetic conception). Besides, it does not aim at arousing emotions in particular, but visceral sensations resulting from the specific nature of the music.

of an orgiastic nature, with which we develop symbiosis. It is a sensation of being a fragile human caught inside the fury of the elements facing the mighty power of the natural and cosmic laws. Through this powerful experience, Xenakis also aims to generate some kind of ecstasy or exaltation (Barrett, 2002, p. 71). For the composer:

Art, and, above all, music, has a fundamental function, which is to catalyze the sublimation that it can bring about through all means of expression. It must aim [...] to draw towards a total exaltation in which the individual mingles, losing his consciousness in a truth immediate, rare, enormous, and perfect. If a work of art succeeds in this undertaking even for a single moment, it attains its goal (Xenakis, 1971, p. 1).

2.2. Meaning

Concerning the issues of meaning, although they are not one of the primary concerns of the composer, music can always be subject to extra-musical associations made by the listener. The characteristic of Xenakis' music redefines the way it is experienced. As explained earlier, the listener is transported into a musical universe where events do not occur in a linear manner. Such events can still be subject to associations, but they are no longer situations comparable to the reception and decoding of verbal utterances. The listener cannot consider music as a succession of entities, clearly distinguishable. It is rather a multiple and complex phenomenon that far exceeds the possibility to discriminate each discrete unit, as can be done when hearing a linguistic utterance. When speaking of "meaning" in this context, it is in terms of immersion, in the manner similar to the perception of the countless sonorous events and sensations we are flooded with in our daily environments. In other words, music functions like a micro-universe, surrounding the listener, where sonorous information comes from everywhere around. It is a global sensation rather than a clear conscious set of data. It is no longer a question of telling a story, painting a landscape, or exposing one's emotional states before an audience that would stay outside the story. Instead, it is unfolding a world in which the listeners' perceptions and interpretations are actively solicited.

Electroacoustic material, for the most part, evades the codifications associated with traditional musical parameters such as pitch, rhythm, harmony, scales, and so on⁴. In this case, music is no longer set inside a quasi-lexical logic based upon culturally codified figure-types. In this respect, such music benefits from a larger freedom of interpretation. The listener may try to give meaning to the visceral sensations that the composer's music is creating. Xenakis does not really try to impose a right interpretation to his music, although there are sometimes underlying ideas, visions, or bits of personal meaning implied in it. Music is not the vehicle of univocal sense, but an action that insists on the equivalence of every sign through underlying abstract patterns, "in order to constitute a presence, a crystal, a rock offering a multiplicity of senses" (Pardo Salgado, 2003, p. 176). As the composer wrote in his text for *Le Diatope*:

Every musical piece is like a highly complex rock with ridges and designs engraved within and without, that can be interpreted in a thousand ways without a single one being the best or the most true. By virtue of this multiple exegesis, music sustains all sorts of fantastic imaginings, like a crystal catalyst (Xenakis, 1978, p. 8; Xenakis, 1987, p. 32).

Thus, listeners are free, for the most part, to interpret it in diverse ways. His music turns up like a mobile or a moving, enigmatic sculpture that invites listeners to engage in a sensitive and physical dialogue with it. The image of the crystal most particularly identifies music as a

⁴ The listener's ear and interpretation may still be conditioned to various degrees by conventional cultural codes, but Xenakis' approach to material, for most part, has sought to escape such codes.

process of “crystallization”, a materialization of the compositional thought (cf. Pardo Salgado, 2003, p. 174). As a matter of fact, for the composer:

Music is a matrix of ideas, of actions of energy, of mental processes, reflections in turn of the physical reality which created us and which sustains us and of our light, lucid and dark, obscure psychism. Expression of visions of the universe, of its waves, of its branchings, of its human beings just as much as the fundamental theories of theoretical physics, of abstract logic, of modern algebra [...] Music is the harmony of the world, but homomorphized by the domain of current thought (Xenakis 1971, p. 57).

3. The Case of *La légende d’Eer*

As an illustration, we propose to examine the case of *La légende d’Eer*, which was composed for the *Diatope* multimedia show. Composed on seven tracks, it is an independent musical piece whose title was borrowed from the homonymous myth told by Plato at the end of *The Republic*. The *Diatope* show combined four media: music, architecture, light show, and five programmatic texts. As Sven Sterken suggests, this type of multimedia work of art can be attached to “the tradition that links Wagner’s conception of the total artwork (the *Gesamtkunstwerk*) with contemporary notions of cyberspace, in the sense that they both deal with the creation of an immersive and artificial environment” (Sterken, 2001, p. 63). Xenakis also designed the architectural structure within which the spectacle took place. Just as in the other *polytopes*, the special environment plays a significant role. As Sven Sterken observes:

Xenakis has transposed his temporal thinking into three-dimensional space; these art works can thus be considered as the return to architecture of a composer who, in his mind, has always remained an architect and an engineer. Through the masterly use of the latest technological tools in the *Polytopes*, architecture becomes an art of time and music an art of space (Sterken, 2001, p. 63).

3.1. Expressiveness and Meaning

Unlike other music for the *polytopes*, the piece assumes a dramatic arch-like form: first, a slow, progressive apparition of the music; then, several waves culminating in a sort of flood; and, at last, a progressive disappearing (cf. Solomos, 2004, p. 3). The composer, in discussing about the *Diatope* and his other *polytopes*, confessed:

I want to bring the stars down and move them around. Don't you have this kind of dream? (Matossian 1981, p. 50).

This piece illustrates this intention. The listeners progressively find themselves in a moving universe, where myriads and constellations of sounds and lights assail them on all sides. Take, for example, the transitional part that starts at the nineteenth minute. This part includes several layers of percussive sounds, including plucked mbira⁵, sounds of rattling ceramics and of waves of *col legno* massive string, as well as the sound of tsuzumi⁶. They generate undulation, creating strong sensations of being carried away in the gigantic waves of a sea. Xenakis, himself, confirmed this sensation:

When I composed *La légende d’Eer*, I thought of someone finding himself in the middle of the ocean. All around him, the elements are unleashed, or not, but they surround him anyway (Drühen, 1995).

⁵ African thumb piano.

⁶ Small Japanese drums.

These references are just images and metaphors to clarify the ineffable sensations produced by the movements. This is not to say that it seeks to make the listener visualize a sea in particular. This assumption is one possible reading, but not necessarily the unequivocal one. The aim here is to make the listener literally feel strong dynamic sensations, as if he were being rocked by sonic flows all around. He can experience these sensations in an abstract manner, too.

3.2 Apparent Tone Painting

As some listeners have noticed, some sounds might easily be regarded as tone painting. For example, the main electronic sound in the central section may conjure the image of a whirlwind. Other electronically generated sounds, including brassy sounds (the Brownian movements), may evoke the image of a swarm of bees or flies (cf. Solomos, 2004, p. 11). Another example is the high, metallic whistling sounds at the beginning and end of the piece, which have often been associated with the image of stars or shooting stars (Harley, 2002, p. 51; Solomos, 2004, p. 17), including by Xenakis. One can intuitively understand the iconic and even symbolic connections implied here⁷.

However, such anecdotal impressions should not be taken too literally for three main reasons. First, such sounds may be interpreted as something else. For example, some listeners had sometimes visualized the image of insects, such as crickets, while others heard bird songs in the night. Others may perceive it in a more abstract manner, as simple sonorous points scattered in space. Second, and more importantly, such apparent imitations are often pretexts for creating new sounds on which to focus. The composer seeks to direct the listener's attention, not much on the referent, but *on the sound itself for its texture and qualities*. Third, and most significantly, it is not the isolated sounds that matter here but the global way in which they are organized as a mass of sound in space to generate global sensations and impressions. No matter what images the individual sounds may conjure for listener, the sensation of being plunged into a world swarming with a mass of sounds is clearly felt.

Furthermore, in the context of the *Diatope*, relationships between light and space are vital. The light show is dealt with in a manner similar to sound. The composer's numerical conception of reality allows the abolition of differences between the diverse domains of human activity, and, consequently, it can carry the equivalence of light and sound, as well as of speed and density. This equivalence deals with light and sound as signs that do not belong to a language and instead are governed by mathematical substrates. The light show, composed of laser beams and flashes, generate all manner of geometrical configurations, including "spinning spirals invading space, then disappearing into complete obscurity", as Xenakis describes them (Xenakis, 2006, p. 325). There is no contradiction in the *Diatope* between abstraction and figuration; rather there is a permanent back-and-forth movement. On the visual level, the galaxy-like figures may be perceived as intended figurations of galaxies. Nothing, however, prevents the audience from considering it a pure and formal ensemble of light points. In the first case, the poetry of such figures is the primary focus, and, in the second, interest is directed toward their geometrical qualities.

⁷ The terms "iconic" and "symbolic" are here understood in the context of the famous trichotomy of Charles Sanders Peirce: an "icon" is a sign sharing structural similarities with its referent. A "symbol" is a sign implying a conventional code that one is to know to understand it (Peirce, 1979, pp. 139-160).

3.3 Interaction Between Forms of Media

It is necessary to clarify the relationship between music and the lightshow as the previous observations might imply that there are tautological associations between both of them. This is not really the case. The detailed study of the indications of the composer concerning the lightshow and the “score” shows that the composer does not seek any global coincidence between music and visual spectacle. As Sterken has observed:

Instead of bringing into action all the expressive media at one time, to end up in what could be called “an immense tautology”, [...] Xenakis goes the opposite way: after a deconstruction to their basic formal entities, each of the participating media is treated independently, while following the same global logic that holds the ensemble together (Sterken, 2001, p. 271).

The absence of a common framework between sound and image allows their free evolution, which does not preclude occasional points of coincidence. Although the desired aim is some form of totality, it does not follow from a preliminary idea that might have organized the global unrolling of both the music and the visual show simultaneously. This totality is the direct result of their autonomous superimposition, which means that each work of art preserves its own specificity. This fact also implies that neither form of media – neither sound nor image – has supremacy over the other. Unlike opera, the totality is not achieved by fusing various forms of artistic media through a federating element (music in the case of opera). In retaining their specificities, each artistic domain maintains its autonomous existence; when encounters occur between artistic media, fertile differences may be generated.

The chosen shape of the architectural structure responds to issues related to the sensitive experience of both the lightshow and the music by the visitors. According to Xenakis, the effect of the architectural forms has a “quasi-tactile” influence on the sensitive quality of the show. The architectural structure also, and foremost, contributes directly to the immersive experience. The lightshow and the music are conceived in terms of space. Hence, their interaction with architecture can be seen as the conjunction of several layers of superimposed spaces. All concur to unfold a complex and powerful moving spatial environment, meant to envelop the listener and reinforce this strong tactile experience, delivered by the combination of music and light. The glass floor also reinforces, as Sterken notes, “the impression of immersion; the audience seems to be suspended in the pavilion's interior” (Sterken, 2001, p. 269). Plunged into an enveloping world, listeners experience the show in a quasi-tactile mode, in the sense that the media tends to touch them directly on a sensitive bodily level. The work here leaves the medium level, in which concert music generally belongs to invade level both physical and metaphysical. Beyond this superposition of spatial layers, one could also consider their relation with the outside environment. As Sterken notes about the architectural structure:

The *Diatope*'s canvas is also translucent and permeable: light, sound, and cold enter from the outside. The change in prefix in the *Polytope*'s name already announces this: “dia” signifies “through”. This causes an imperfection in the artificial reality Xenakis wants to evoke in his *Diatope*: for reason of the poor acoustic, thermic and visual isolation, the visitor is obliged to constantly oscillate between the interior and the exterior, between the artificial and the natural, between his imagination and reality or virtuality and reality. This way, he is forced to be aware of the simultaneity of these situations. This is expressed by Xenakis in his sketch of the *Diatope*: contrary to the Philips Pavilion, the *Diatope* is open to the energetic waves that circulate in our environment (Sterken, 2001, p. 269).

As a result, there is an ambiguous relationship between the inside and the outside. The outside space may be regarded as an extra-spatial layer, enveloping and interacting with the other spatial layers. In sum, there is a desire to blur the distinction between reality and virtuality.

3.4 Interactions with the Title and the Texts

Just like the visual show, the title and programmatic texts may influence the way the listener perceives and interprets the music, acting as an “anchorage”. We refer here to the concept introduced by semiologist Roland Barthes (Barthes, 1977, pp. 38-40). When applied to the domain of music⁸, it implies that the accompanying linguistic elements, such as the texts or the title of the work, can serve to influence the preferred readings of the music and “fix the floating chain of signifieds” (Barthes, 1977, p. 39). Such elements may reflect certain poetic concerns by the composer but they do not really assume the function of an argument or the outline of a story that is supposed to be heard. In the present case, the word “resonance” would be more appropriate. As musicologist James Harley also observed, the texts, while not forming a narrative, resonate in multiple ways with the cosmic, apocalyptic scope of the sounds and lights, and “the texts all share a vision of the vastness of the universe, with different images of light and life within that infinity” (Harley, 2002, p. 48). The composer explained his approach:

Myself, I wanted to deal with the abysses that surround us and among which we live. The most formidable are those of our destiny, of life or of death, visible and invisible universes. The signs that convey these abysses to us are also made of the lights and sounds that provoke the two principal senses that we possess. That is why the Diatope would like to be a place for the condensation of those signs from the many worlds. Rational knowledge coalesces with intuitive knowledge, or revelation. It is impossible to dissociate one from the other. These abysses are unknowable, that is to say, knowledge of them is an eternal and desperate flight, composed of milestones-hypotheses across the epochs (Xenakis, 1978, p. 8; Xenakis, 1987, p. 32).

Together, these texts form a sort of kaleidoscope, showing various fragments of historical knowledge, representations, and poetical expressions, which attempt to give answers to the question of the origin, immensity and mystery of the universe. The texts not only resonate with music and other medias, but also echo upon each other across the distances, in the time, space, and culture that separate them (Barrett, 2001, p. 79). For Richard Barrett:

What seems above all to interest Xenakis is the response of the human imagination (human capacity to form “virtual” images of a perceived reality) to coming face to face with the limitless void, whether in a mystical philosophical or fictional context, which applies as much to the myth-making of Plato or Hermes Trismegistus as to Jean-Paul’s Fantastical reverie or Pascal awed speculations (Barrett, 2001, p. 82).

The title and first text is borrowed from the myth told by Plato at the end of *The Republic*, about a killed soldier who is resurrected, telling what he saw in the afterlife, including the description of the harmonious structure of the Universe. The second text is from the *Poimandres*, attributed to the mysterious Hermes Trismegistus, whose mythical figure was revered by many esoteric philosophers of the Renaissance. It describes revelations about the nature of the universe and the creation by an almighty divinity of light: *Poimandres*. The passage from Blaise Pascal’s *Pensées* expresses some kind of awe in face of the infinity and immensity of nature and the insignificant place occupied by humanity within it. The fourth text comes from an author to whom Xenakis will also refer in *Nekuia* and in *Pour la Paix*: the

⁸ Concerning theoretical use of this concept in music see also Nattiez, 2004, p.275.

German romantic writer, Johann Paul Richter. In the *Diatope*, he quotes an excerpt of his novel *Sibenkäs*, describing a reverie in which Christ reveals the souls of the dead for which he has travelled across the infinity of space and found that they were all alone – that universe and its wild nature were actually not governed by any God. There again, images of an immense, empty, and violent universe are conjured in the description. The fifth text is an excerpt from a scientific article by Robert P. Kischer, titled “Supernovas in other Galaxies”, which deals with the construction of a theoretical model for explaining and giving information on the formation of the stars and the universe. We can easily understand what kind of resonance such texts can create when feeling how the composer seeks to immerse the listeners in a world where gigantic masses are rocking him from side to side.

This cosmic metaphor is also reflected in his use of points and straight lines in the lightshow. As Xenakis explains,

Just as our universe is formed with grains (matter) and with straight line (the photonic radiance) that are ruled by stochastic or deterministic rules, this spectacle proposes a small reflection of it, but in a symbolic and abstract. Thus, music and light are unified with each other. Somehow it is the harmony of the spheres of cosmos that identifies, through art, with the harmony of the thought (Xenakis, 1987, p. 36).

In sum, following these directions the show may be experienced as a cosmogony or as a journey into death. This piece implies a contemplation of the immensity of the cosmos and its relations to human existence. There is somehow a will to recreate a new kind of *musica instrumentalis* in connection with the cosmos, a new vision of the “music of the spheres”, “but from a point of view inspired by science rather than religion—that is to say, inspired by informed speculations rather than credulity” (Barrett, 2001, p. 71). In a general manner, these texts may be regarded as providing possible keys for which to enter the music. Nothing, however, prevents listeners from interpreting, picturing, or feeling these visceral sensations in other directions.

Conclusion

In a conclusion, one can regard Xenakis’ approach as a new form of naturalism in music. It does not seek to represent or paint images of nature or communicate messages. Rather, Xenakis seeks to immerse the listener in the underlying undetermined processes found in Nature. Composer F-B Mâche made the following comment about this type of approach:

In the twentieth century, one large characteristic of music is not to realize the humanist ideal of communication between men, but to rediscover the function the universe once had: the sacred; that is an interrogation about the universe and not just the psychological and the social dimension (Mâche, 1998, p. 41).

The music of *La légende d’Eer* offers a magisterial example of such a vision. This piece functions as a metaphor, reflecting and interrogating the mystery of the universe and nature through abstraction that allows equivalence between different domains – yet it is a metaphor without a specific univocal referent. The music acts as a catalyzing crystal, a rock, and a way to build a perception through equivalences. The *Diatope* show proposes a miniaturized reflection of the “abysses surrounding us”, through a symbolic and abstract construction. The interaction between the different media furthers this perspective: all converge toward the same goal. The electronic flashes and the laser beams are governed by mathematical functions – the same goes for architecture and music. Thus, they are united, one with the other. In a

sense, this is the harmony of the spheres, identified with the intuitive and rational power of human thought.

References

- BARRETT Richard, “*Musica Instrumentalis* of the Merciless Cosmos: *La légende d’Eer*”, *Xenakis Studies : in Memoriam, Contemporary Music Review*, 21 (2-3), 2002, pp. 72-78.
- BARTHES Roland, “Rhetoric of the Image”, in *Image, Music, Text*, New York, Hill and Wang, 1977, pp. 32-51.
- CHION Michel, *Le poème symphonique et la musique à programme*, Paris, Fayard, 1993.
- COOKE Deryck, *The Language of Music*, New York, Oxford University Press, 2001, 1959.
- DAVIES Stephen, *Musical Meaning and Expression*, Ithaca, Cornell University Press, 1994.
- DAVIES Stephen, “Philosophical Perspectives on Music’s Expressiveness”, in Juslin Patrik and Sloboda John (ed.), *Music and Emotion. Theory and Research*, Oxford, Oxford University Press, 2001, pp. 23-44.
- DRÜHEN Dominique, *Interview with Iannis Xenakis*, in the CD cover *Iannis Xenakis 2. La légende d’Eer*, Auvidis Montaigne, MO 78058, 1995.
- DELEUZE Gilles, GUATTARI Félix, *Mille plateaux*, Paris, Les éditions de Minuit, 1980.
- DI SCIPIO Agostino, “Métaphore, formalisation et intuition dans Analogique A et B de Xenakis”, in SOLOMOS Makis (éd.), *Iannis Xenakis, Gérard Grisey. La métaphore lumineuse*, L’Harmattan, 2003, pp. 181-192.
- DUHAUTPAS Frédérick, “Expressivité, modernité et musicologie critique. La modernité au-delà des discours formalistes”, *Filigrane : “New Musicology. Perspectives critiques”*, 11, Paris, Delatour, 2010, pp. 37-65.
- ESCLAPEZ Christine, “La musique comme langage ?”, in VECCHIONE Bernard et HAUEUR Christian (ed.), *Le sens langagier du musical, Sémiologie et herméneutique, Actes du 1er Symposium d’Aix-en-Provence*, Paris, L’Harmattan, 2009, pp. 147-167.
- FRANCÈS Robert, *La perception de la musique*, Paris, J. Vrin, 1972.
- HANSLICK Édouard, *Du beau dans la musique*, Paris, Christian Bourgois, 1986.
- HARLEY James, “The Electroacoustic Music of Iannis Xenakis”, *Computer Music Journal: “In Memoriam Iannis Xenakis”*, 26 (1), 2002, pp. 48-51.
- IMBERTY Michel, *Entendre la musique, Sémantique psychologique de la musique*, Paris, Dunod, 1979.
- KIVY Peter, “Making the Codes and Breaking the Codes, Two Revolutions in Twentieth-Century Music”, in *New Essays On Musical Understanding*, London, Clarendon Press, 2001, pp. 44-67.
- KIVY Peter, *The Chorded Shell*, Princeton, Princeton University Press, 1980.
- MÂCHE François-Bernard, *Entre l’observatoire et l’atelier*, Paris, Kimé, 1998.
- MATOSSIAN Nouritza, “L’artisan de la nature”, in GERHARDS Hugues (ed.), *Regards sur Iannis Xenakis*, Paris, Stock, 1981, pp. 44-51.

- MERIC Renaud, "Concret PH, un espace mouvant", in SÈDES Anne et VAGGIONE Horacio (ed.), *Actes des Journées d'Informatique Musicale*, Saint-Denis, AFIM/CICM/Université de Paris VIII/MSH Paris Nord, 2005, pp. 147-157.
- MEYER Leonard, *Emotion and Meaning in Music*, Chicago, The University of Chicago Press, 1957.
- NATTIEZ Jean-Jacques, "La signification comme paramètre musical", in NATTIEZ Jean-Jacques (ed.), *Musiques: une encyclopédie pour le XXI^{ème} siècle*, vol. 2 : *Les savoirs musicaux*, Paris, Acte sud, 2004, pp. 258-289.
- NATTIEZ Jean-Jacques, *Musicologie générale et sémiologie*, Paris, Christian Bourgois, 1987.
- PARDO SALGADO Carmen, "Les modes du sommeil. La métaphore chez Xenakis" in SOLOMOS Makis (ed.), *Iannis Xenakis, Gérard Grisey. La métaphore lumineuse*, L'Harmattan, 2003, pp. 169-180.
- PEIRCE Charles Sanders., *Écrits sur le signe*, Paris, Seuil, 1978.
- ROBINDORÉ Brigitte, "Eskhaté Ereuna: Extending the Limits of Musical Thought – Comments On and By Iannis Xenakis", *Computer Music Journal*, 20 (4), 1996, pp. 13-16.
- SLOBODA John, *L'esprit musicien, la psychologie cognitive de la musique*, Liège, Mardaga, 1988.
- SOLOMOS Makis, "De l'apollinien et du dionysiaque dans les écrits de Xenakis", in SOLOMOS Makis, SOULEZ Antonia, VAGGIONE Horacio (ed.), *Formel/Informel : musique-philosophie*, Paris, L'Harmattan, 2003, pp. 49-90.
- SOLOMOS Makis, "Le Diatope et La légende d'Eer de Iannis Xenakis", in BOSSIS Bruno, VEITL Anne, BATTIER Marc (ed.), *Musique, instruments, machines. Autour des musiques électroacoustiques*, Paris, Université Paris 4/MINT, 2004, pp. 95-130, et www.iannis-xenakis.org/fxe/actus/enligne.html, 2004.
- STERKEN Sven, "Towards a Space-Time Art: Iannis Xenakis's Polytopes", *Perspectives of New Music*, 39 (2), 2001, pp. 262-273.
- SWAIN Joseph, *Musical Languages*, New York, Norton & Compagny, 1997.
- TARASTI Eero, *La musique et les signes*, Paris, L'Harmattan, 2006.
- VARGA Bálint A., *Conversations with Iannis Xenakis*, London, Faber and Faber, 1996.
- XENAKIS Iannis, *Iannis Xenakis, Musique. Architecture*, Tournai, Casterman, 1971.
- XENAKIS Iannis, *Arts/Sciences. Alloys*, Stuyvesant NY, Pendagron Press, 1985.
- XENAKIS Iannis, *Musique de l'architecture, textes, réalisations et projets architecturaux*, choisis, présentés et commentés par KANACH Sharon, Marseille, Éditions Parenthèse, 2006.
- XENAKIS Iannis, "La légende d'Eer (première version). Geste de lumière et de son du Diatope au Centre Georges Pompidou", in *Centre Georges Pompidou-Xenakis, Le Diatope : geste de lumière et de son*, Paris, Centre Georges Pompidou, 1978, pp. 8-12 ; repris in XENAKIS Iannis, *Musique de l'architecture, textes, réalisations et projets architecturaux*, choisis, présentés et commentés par KANACH Sharon, Marseille, Éditions Parenthèse, 2006.
- XENAKIS Iannis, BROWN Roberta and RAHN John, "Xenakis on Xenakis", *Perspectives of New Music*, 25 (1), 1987, pp. 16-63.